



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,784	11/02/2001	Kevin A. Marshall	SUNIP749/P5575NP	3211

22434 7590 05/02/2005

BEYER WEAVER & THOMAS LLP  
P.O. BOX 70250  
OAKLAND, CA 94612-0250

EXAMINER

PHAM, CHRYSTINE

ART UNIT PAPER NUMBER

2192

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,784

Applicant(s)

MARSHALL, KEVIN A.

Examiner

Chrystine Pham

Art Unit

2192

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,7-14 and 16-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7-14 and 16-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

#### DETAILED ACTION

1. This action is responsive to the Amendments filed on December 1<sup>st</sup> 2004. The Applicant has canceled claims 2, 6, and 15. Claims 1, 10, 12, 22, 23, and 24 have been amended. Claims 1-2, 4-5, 7-14, 16-24 are presented for examination.

#### *Response to Amendment*

2. In view of the amendment to claims 10 and 12 in response to claim rejection under 35 USC 112, the rejection of claims 10-12 are hereby withdrawn.

#### *Response to Arguments*

3. The Applicant essentially asserted that *Chung et al.* do not anticipate "the one or more files examined comprises a history of one or more errors generated during execution of the software system". It is respectfully submitted that *Chung et al.* do teach, "the one or more files examined comprises a history of one or more errors". In fact, it is inherent that the system and method for identifying program errors taught by *Chung et al.* utilize "the one or more history files" in which errors can be saved and tracked as they are being discovered during the process of source code scanning. The Applicant contends that Table 1 on col.6:10-25 of *Chung et al.* does not constitute the "history of one or more errors". It is respectfully submitted that not only Table 1 serves as an illustration of the disclosed method of tracking and identifying errors, it **discloses** identifying, tracking, and storing all the **data considered to be essential** in the teaching of *Chung et al.*, that is to say, the components in which the errors were detected, the numbers of errors detected in each component, and the lines of code scanned for each component. Without a "history file", located in memory, to which these data can be saved, it is impossible to retrieve said data for further calculation (e.g., of the number of all errors in the entire software system) and manual analysis by software developers (see *Chung et al.* FIG.2 205, 209 & associated text). In view of the foregoing discussion, it is respectfully submitted that *Chung et al.* anticipate the "one or more files comprising a history of one more errors".

4. The Applicant further contends that the motivation for combining *Chung et al.* and *Ruhlen et al.* "relies on impermissible hindsight gleaned from Applicant's disclosure". It is respectfully submitted all motivations provided in previous Office Action for combining references are found in the prior art. See the following rejections for specific citations.
5. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the following new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
*The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.*
7. Claim 24 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24, it recites the limitation "the method" in line 2. There is insufficient antecedent basis for this limitation in the claim. For compact prosecution of the claims, the office has interpreted the limitation "the method" as referring to the limitation "apparatus" recited in line 1 of claim 24. "the method" in claim 24, hereinafter, will be interpreted as "the apparatus".

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:  
  
*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious*

Art Unit: 2192

*at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

9. Claims 1-2, 16, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable by Chung et al. (US 6745348), hereinafter *Chung et al.* in view of Smith, Jr. et al. of record (*Smith et al.*, US 5761510).

#### Claim 1

*Chung et al.* teach a method (e.g., see Abstract), apparatus (e.g., see FIG.1 & associated text) comprising a processor (e.g., see CPU 10 FIG.1 & associated text) a memory (e.g., see RAM 14, disk units 20 FIG.1 & associated text), and a computer-readable medium storing instructions (e.g., col.4:27-32, see application 42 FIG.1 & associated text) for automatically generating data regarding errors in a software system (e.g., see Abstract), the software system including one or more software components (e.g., see 301A, source file 311A, 301B, 301C FIG.3 & associated text), the method comprising:

- obtaining/examining contents of one or more files (e.g., see Table 1 col.6:10-26) indicating one or more errors (i.e., file history/record of one or more errors) (e.g., see Errors col.6:12-25) in the software system to determine (i.e., identify) one or more of the software components (i.e., source files) prone to or responsible for the errors (e.g., see Component col.6:12-25) and a number of the errors attributed to each of the software components determined to be responsible for the errors (e.g., see 203 FIG.2 & associated text, see Errors col.6:12-25); and
- determining a size of the one or more software components responsible for the errors (e.g., number of lines of code col.2:1-4, see 201 FIG.2 & associated text, see Lines of Code Scanned col.6:11-25).

*Chung et al.* do not expressly disclose said errors being errors generated during execution of the software system. However, *Smith et al.* disclose a method for identifying errors generated during execution (e.g., see errors, test application, execution Abstract; 98 FIG.3 & associated text; 240, 250

Art Unit: 2192

FIG.5 & associated text; see *executable test application 120, errors, header error file 140* col.13:30-60; see *Error Table, errors, execution, test program* col.14:19-25) of a software system (e.g., *program interface, test application*, Abstract; see *API 98* FIG.3 & associated text; see *Test Application 120* FIG.4 & associated text) comprising one or more software components (e.g., see *Header File 100* FIG.4 & associated text; *210, 260* FIG.5 & associated text; see *285* FIG.7 & associated text) and storing said the errors generated during execution in one or more history/record files (e.g., see *HeaderError File 140* Fig.4 & associated text; see *Error Table* FIG.8 & associated text; see *hear error file 140, TEST.LOG* col.8:10-57; see *header error file 140, Error Table, TEST.LOG* col.10:17-41).

*Chung et al.* and *Smith et al.* are analogous art because they are both directed to monitoring, identifying errors in software programs. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *Smith et al.* into that of *Chung et al.* for the inclusion of identifying "errors generated during execution" of the software program. And the motivation for doing so would have been to ensure that library program functions associated with the program can be called dynamically (i.e., during execution) and accessed by other programs written in other languages and perform as they were programmed to performed (see *Smith et al.*, col.1:60-col.2:5; col.2:67-col.3:30; col.3:59-65).

## Claim 2

The rejection of base claim 1 is incorporated. *Chung et al.* further teach correlating the size (e.g., *number of lines of code* col.2:1-4, see *201* FIG.2 & associated text, see *Lines of Code Scanned* col.6:11-25) of the determined software components (e.g., see *Component* col.6:12-25) with the number of errors attributed to the determined software components (e.g., see *203* FIG.2 & associated text, see *Errors* col.6:12-25), thereby enabling data indicating a probability of errors (e.g., see *204* FIG.2 & associated text, col.6:45-56) occurring during execution (e.g., col.1:15-21, see *internationalization faults/errors* col.1:58-60) of a set of software components to be generated from the determined size of the software components determined to be responsible for the errors and the number of the errors

attributed to each of the software components determined to be responsible for the errors (e.g., see FIG.2 & associated text).

**Claims 3, 16**

Claims recite limitations which have been addressed in claims 1, 2, therefore, are rejected for the same reasons as cited in claims 1, 2.

**Claim 22**

Claim recites a computer-readable medium version of the method addressed in claim 1, therefore, is rejected for the same reasons as cited in claim 1.

**Claims 23, 24**

Claims recite an apparatus version of the method addressed in claim 1, therefore, are rejected for the same reasons as cited in claim 1.

10. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chung et al.* in view of *Smith et al.* further in view of Ruhlen et al. (US 6665824), hereinafter, *Ruhlen et al.*

**Claim 4**

The rejection of base claim 1 is incorporated. *Chung et al.* and *Smith et al.* do not expressly disclose the contents of one or more files examined further indicating one or more source code modifications made in response to the errors. However, *Ruhlen et al.* disclose a method for tracking/counting errors which occur during the execution of the software components (e.g., col.1:15-18, col.1:23-28, see *failure reporting executable* 230 FIG.2 & associated text) in a software system including one or more software components (e.g., col.4:10-13), storing the modifications (i.e., source code changes) made in response to the errors (e.g., col.3:63-67), in a file (e.g., see *repository* 235 FIG.2 & associated text, col.2:11-13). *Chung et al.* and *Smith et al.* (hereinafter **CS**) and *Ruhlen et al.* are analogous art since they are both

directed to tracking and counting the number of errors occurred in a software system. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *Ruhlen et al.* into that of **CS** to include tracking and storing modifications made in response to the errors. And the motivation for doing so would have been to minimize the time and cost of error query processing as conventionally performed by a computer program, thus improving the technique for locating of errors in a software system and improve the handling of error queries and technical support in an environment where the software system is distributed and used by a large number of clients (e.g., see motivation suggested by *Ruhlen et al.* col.1:29-36; col.1:43-65).

#### Claim 5

The rejection of base claim 4 is incorporated. *Ruhlen et al.* further teach wherein determining from the one or more files one or more of the software components responsible for the errors comprises: determining from the source code modifications/changes (e.g., see *application version number, module version number* col.6:66-col.7:3, see "10.0.2310.1", "10.0.2312.1" col.7:10-25) one or more software components modified (e.g., see *application program name, module name* col.6:66-col.7:3, see "winword.exe", "mso.dll" col.7:10-25) to correct the errors (e.g., see *failing instruction's instruction pointer* col.6:66-col.7:3, see "0bcd1234" col.7:10-25). It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made combine the teachings and the motivation for doing so would have been that which has been as applied to claim 4.

11. Claims 7-9, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chung et al.* in view of *Smith et al.* in view of *Ruhlen et al.* further in view of Leung (US 6769114), hereinafter, *Leung*.

#### Claim 7

The rejection of base claim 1 is incorporated. *Ruhlen et al.* teach wherein examining contents of one or more files indicating one or more errors in the software system comprises generating a list of one or more



Art Unit: 2192

errors corresponding to source code changes (see claim 4). The combined teaching (*Chung et al.* & *Smith et al.* & *Ruhlen et al.*), hereinafter referred to as **CSR**, do not expressly disclose generating a list of one or more files associated with successful attempts to correct the errors. However, *Leung* discloses a method (e.g., see Abstract) of tracking/associating errors (e.g., col.6:25-41) with modifications (i.e., versions, files, source code changes) (e.g., see *software modifications* col.3:25-29, see *second version* col.9:20-23, col.12:58-61) and associating modifications with successful attempts (e.g., see *previous passed integration tests* col.3:25-29, col.9:20-23) to correct the errors (e.g., col.1:19-23, see *interface error* col.9:27-28, see *sequence error* col.9:31-32, col.12:62-64, col.11:1-6). **CSR** and *Leung* are analogous art since they're both directed at tracking errors in a software system. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made modify the teaching of **CSR** with that of *Leung* to include the associating of modifications with successful attempts to correct the errors. And the motivation for doing so would have been to monitor the modifications of software components and prevent them from invalidating previous tested and passed versions (i.e., successful attempts to correct errors/defects) of the software components (see motivation suggested by *Leung* Abstract; col.1:24-50; col.6:42-46; col.6:65-col.7:5; col.10:13-20; col.14:42-47; col.15:19-30).

**Claims 8-9, 13-14**

Claims recite limitations which have been addressed in claims 4 and 7, therefore, are rejected for the same reasons as cited in claims 4 and 7.

12. Claims 10-12, 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Chung et al.* in view of *Smith et al.* in view of *Ruhlen et al.* further in view Hanson (US 5946493), hereinafter *Hanson*.

**Claim 10**

The rejection of base claim 1 is incorporated. *Ruhlen et al.* teach wherein determining a size of the one or more software components responsible for the errors comprises determining a section of code

Art Unit: 2192

modified (i.e., modifications, versions) to fix an error (see claim 5). The combined teaching of *Chung et al.*, *Smith et al.* and *Ruhlen et al.* (**CSR**) do not expressly disclose determining start and end lines of a section of code. However, *Hanson* discloses a method (e.g., see Abstract) for determining the start (e.g., see *first line 112* FIG.3A & associated text) and end lines (e.g., see *last annotated line 116* FIG.3A & associated text) of a section of code (e.g., see FIG.2A, 2B, 2D & associated text), matching one or more line numbers associated with source code against compiled information (e.g., see *101* FIG.3A & associated text) associated with the source code (e.g., see *106* FIG.3A & associated text, col.1:32-36, col.1:53-58), converting the start (e.g., see *[10]* FIG.2A & associated text) and end lines (e.g., see *[12]* FIG.2A & associated text) of a section of source code to the start (e.g., see *28* FIG.2B & associated text) and end lines of a current version (e.g., see *40* FIG.2B & associated text, see *object code* col.1:32-36) of a file (e.g., see *108* FIG.3A & associated text). It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made modify the teaching of **CSR** with that of *Hanson* to include determining the start and end lines for a section of code modified to fix an error, matching line numbers associated with the modified source code against compiled information associated with the source code and converting the start and end lines of a section of code to the start and end lines of a current version of a file. And the motivation for doing so would have been to generate a listing associating/mapping the object code (compiled) instructions with the source code instructions which can be used to debug the program, investigate performance problems, and improve the analysis of the quality of the compiled object code (see motivation suggested by *Hanson* col.1:42-60)

**Claims 11-12, 17-19, 21**

Claims recite limitations which have been addressed in claims 5 and 10, therefore, are rejected for the same reasons as cited in claims 5 and 10.

**Claim 20**

The rejection of base claim 18 is incorporated. *Hanson* further teaches comparing information associated with a source code to determine one or more line numbers associated with the modified source code

Art Unit: 2192

(e.g., see 108 FIG.3A & associated text). It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to combine the teachings of *Hanson* and *CSR* and the motivation for doing so would have been that which has been applied to claim 10.

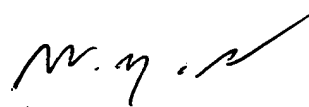
**Conclusion**

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chrystine Pham whose telephone number is 571-272-3702. The examiner can normally be reached on Mon-Fri, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CP  
April 20, 2005

  
**WEI Y. ZHEN**  
**PRIMARY EXAMINER**